

(TLP3061)

OFFICE MACHINE

HOUSEHOLD USE EQUIPMENT

TRIAC DRIVER

SOLID STATE RELAY

The TOSHIBA TLP3061, TLP3062 and TLP3063 consist of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

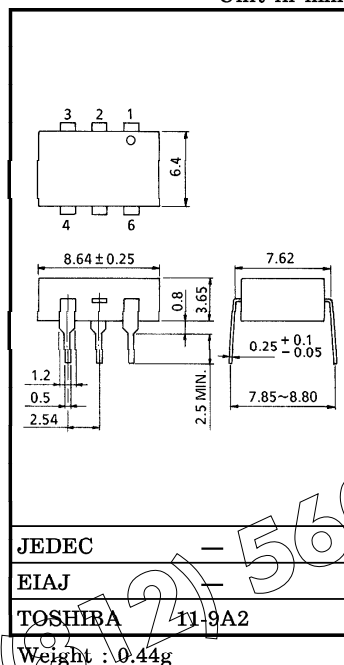
- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 15mA (Max.) (TLP3061)
10mA (Max.) (TLP3062)
5mA (Max.) (TLP3063)
- On-State Current : 100mA (Max.)
- UL Recognized : UL1577, File No. E67349
Isolation Voltage : 5000Vrms (Min.)
- Option (D4) type VDE Approved : DIN VDE0884/08.87,
Certificate No. 68329

Maximum Operating Insulation Voltage : 630V_{PK}
Highest Permissible Over Voltage : 6000V_{PK}

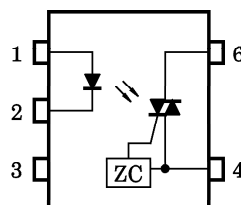
(Note) When a VDE0884 approved type is needed,
please designate the "Option (D4)"

	7.62mm pitch standard type	10.16mm pitch (LF2) type
Creepage Distance	7.0mm (Min.)	8.0mm (Min.)
Clearance	7.0mm (Min.)	8.0mm (Min.)
Insulation Thickness	0.5mm (Min.)	0.5mm (Min.)

Unit in mm



PIN CONFIGURATION (TOP VIEW)



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 4 : TERMINAL 1
- 6 : TERMINAL 2

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I _F	50	mA
	Forward Current Derating (Ta ≥ 53°C)	ΔI _F / °C	−0.7	mA / °C
	Peak Forward Current (100μs pulse, 100pps)	I _{FP}	1	A
	Power Dissipation	P _D	100	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP _D / °C	−1.0	mW / °C
	Reverse Voltage	V _R	5	V
	Junction Temperature	T _j	125	°C
DETECTOR	Off-State Output Terminal Voltage	V _{DRM}	600	V
	On-State RMS Current	I _T (RMS)	100	mA
			50	
	On-State Current Derating (Ta ≥ 25°C)	ΔI _T / °C	−1.1	mA / °C
	Peak On-State Current (100μs pulse, 120pps)	I _{TP}	2	A
	Peak Nonrepetitive Surge Current (P _w = 10ms, DC = 10%)	I _{TSM}	1.2	A
	Power Dissipation	P _D	300	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP _D / °C	−4.0	mW / °C
	Junction Temperature	T _j	115	°C
	Storage Temperature Range	T _{stg}	−55~150	°C
	Operating Temperature Range	T _{opr}	−40~100	°C
Lead Soldering Temperature (10s)		T _{sol}	260	°C
Total Package Power Dissipation		P _T	330	mW
Total Package Power Dissipation Derating (Ta = 25°C)		ΔP _T / °C	−4.4	mW / °C
Isolation Voltage (AC, 1min., R.H. ≤ 60%) (Note 1)		BV _S	5000	V _{rms}

Note 1 : Device considered a two terminal device : Pins 1, 2 and 3 shorted together and pins 4 and 6 shorted together.

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INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	10	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{\text{DRM}} = 600\text{V}$	—	10	1000	nA
	Peak On-State Voltage	V_{TM}	$I_{\text{TM}} = 100\text{mA}$	—	1.7	3.0	V
	Holding Current	I_H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{\text{in}} = 240\text{Vrms}, T_a = 85^\circ\text{C}$ (Fig.1)	200	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{\text{in}} = 60\text{Vrms}, I_T = 15\text{mA}$ (Fig.1)	—	0.2	—	$\text{V}/\mu\text{s}$

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

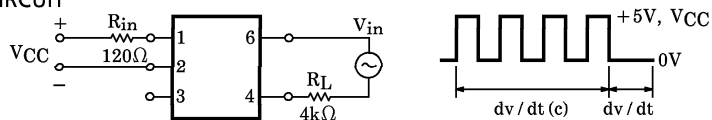
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	TLP3061	I_{FT}	$V_T = 6\text{V}$	—	—	15	mA
	TLP3062			—	5	10	
	TLP3063			—	—	5	
Inhibit Voltage		V_{IH}	$I_F = \text{Rated } I_{\text{FT}}$	—	—	50	V
Leakage in Inhibited State		I_{IH}	$I_F = \text{Rated } I_{\text{FT}}$ $V_T = \text{Rated } V_{\text{DRM}}$	—	100	300	μA
Capacitance Input to Output		C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance		R_S	$V_S = 500\text{V (R.H. } \leq 60\%)$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage		BV_S	AC, 1 minute	5000	—	—	Vrms
			AC, 1 second, in oil	—	10000	—	
			DC, 1 minute, in oil	—	10000	—	Vdc

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	Vac
Forward Current	I_F^*	15	20	25	mA
Peak On-State Current	I_{TP}	—	—	1	A
Operating Temperature	T_{opr}	-25	—	85	$^\circ\text{C}$

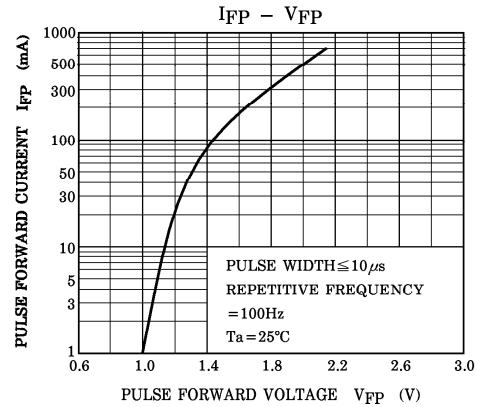
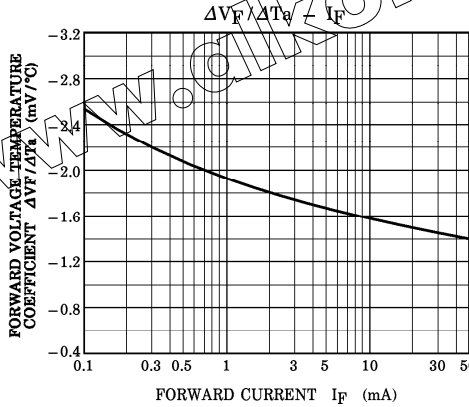
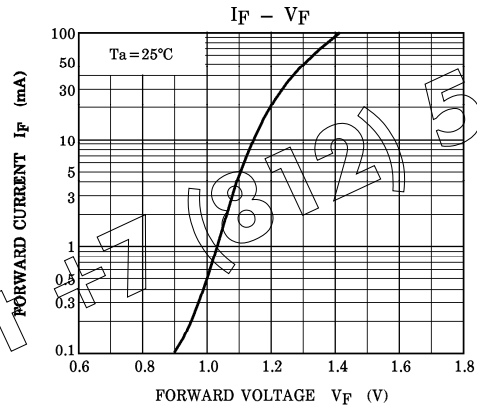
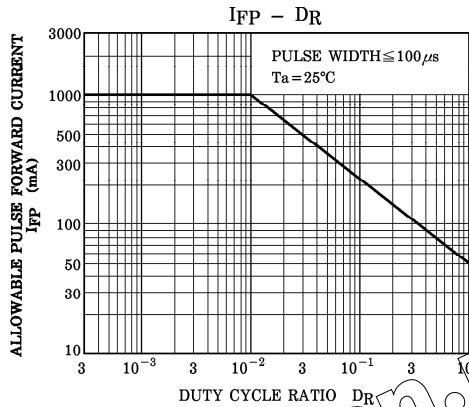
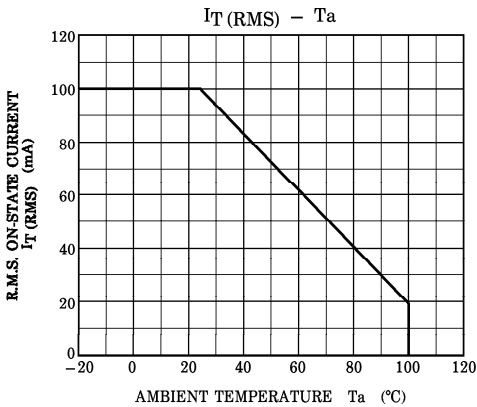
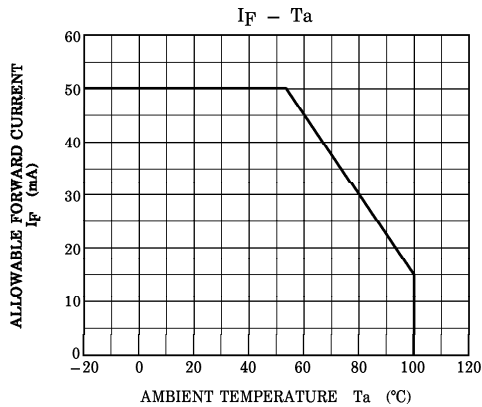
* In the case of TLP3062

Fig. 1 dv/dt TEST CIRCUIT



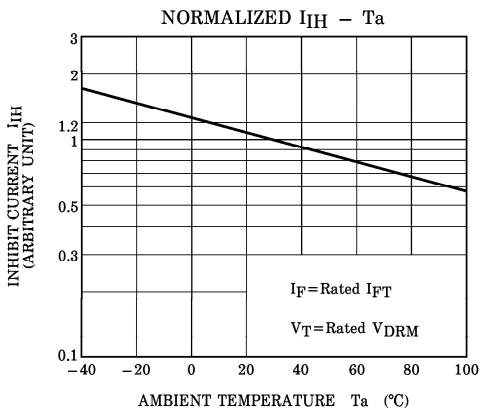
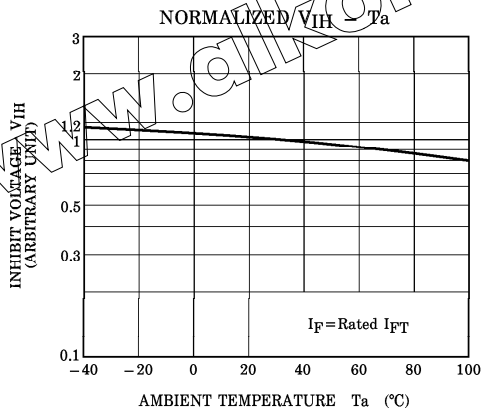
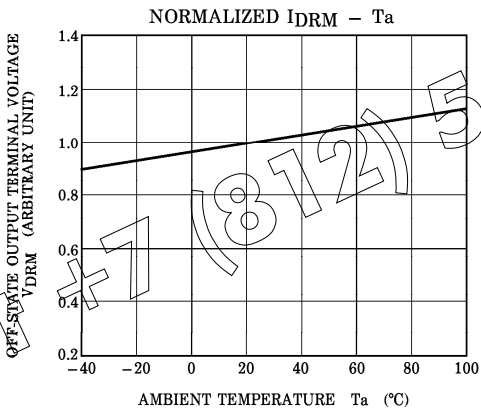
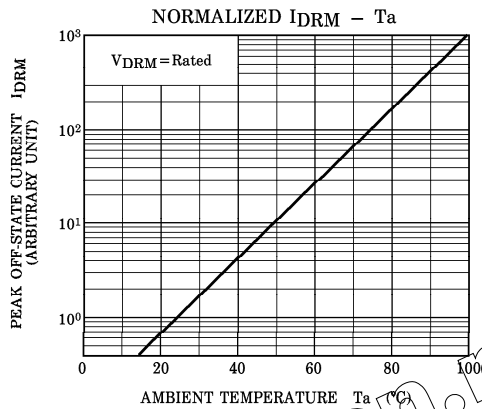
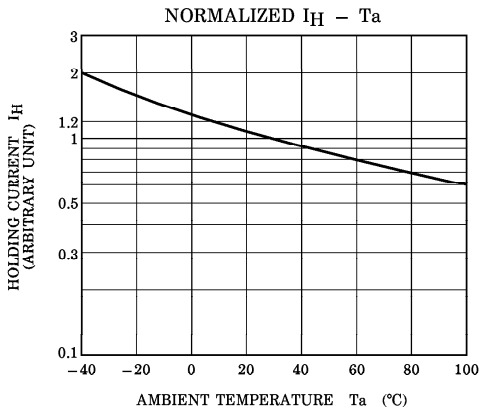
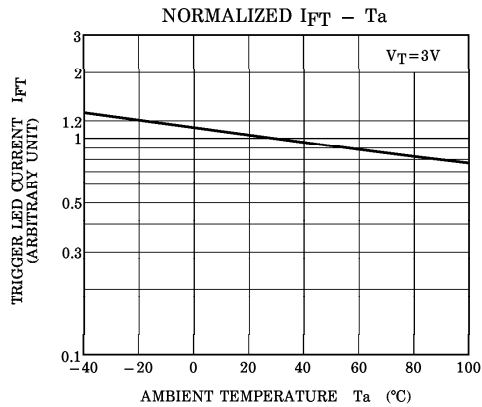
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